

REMARKS

Claims 1-7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by and, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 3,639,301 to Youker ("Youker"). The Examiner indicates that Youker shows polychloroprene latex compositions that are subjected to heat aging. The Examiner mentions that the patent is silent as to the minimum gel content prior to creaming, but assumes that the gel content prior to heat aging is <30%. Applicants respectfully disagree.

The present invention relates to an aqueous polymer dispersion obtained by a) preparing an aqueous polychloroprene dispersion with a gel content of 0.1 wt.%-30 wt.% based on the polymer, prepared by polymerization at 0°C-70°C of chloroprene and, optionally, ethylenically unsaturated monomers which can be copolymerized with chloroprene and b) subsequently storing the dispersion at temperatures of from 50°C-110°C until the gel content has risen by at least 10 wt.% to 1 to 60 wt.%, based on the polymer (Claim 1).

In Youker, a process for improving the properties of a polychloroprene latex is disclosed comprising the step of heating a freshly-prepared chloroprene latex, having a high pH higher than 11, at a temperature in the range of 60 to 90°C until the pH is lowered to the range of 9.5 to 10.

The gel content of the polychloroprene latex employed in the process according to Youker is not mentioned in Youker. According to the examples in Youker, a neoprene latex type A or a neoprene latex type B is used as the polychloroprene latex, which is made according to the procedure of Example 1 of U.S. Patent 2,405,724 to Wilder ("Wilder") (column 3, line 9 to 17). In Example 1 of Wilder it is mentioned that the polymerization for obtaining the neoprene latex is carried out until it was substantially complete (column 3, line 9 in Wilder). From the expression "until the polymerization was substantially complete" a person of ordinary skill in the art knows that the polymerization was conducted up to a monomer

conversion of at least 95%. From the polymerization conditions of Example 1 in Wilder a person skilled in the art knows that the polymerization product obtained has a gel content of at least 90%. If such a polymer latex is used in an aging process according to said b) of claim 1 of the present application an even higher gel content would be obtained.

Therefore, the gel content of the product according to Youker is distinctly different from the gel content of the aqueous polymer dispersion according to the present invention. Element a) according to claim 1 of the present invention is therefore not disclosed in Youker. It is axiomatic that in order to anticipate a claim under 35 U.S.C. § 102(b), a prior art reference must disclose every limitation of the claim. As Youker does not disclose, teach or suggest all of the elements of the present claims, the claims cannot be anticipated by Youker under 35 U.S.C. § 102(b). Therefore, the current claims are deemed to be patentable over Youker and the rejection of Claims 1-7 under 35 U.S.C. § 102(b) should be withdrawn.

Furthermore, Applicants would like to draw the Examiner's attention to Example B (comparison example) mentioned on page 11, line 16 to 22 in the specification of the present application, wherein at similar polymerization conditions (but a lower monomer conversion) polymers are obtained having a gel content of 60% by weight. The product of Example B is not suitable for the preparation of adhesive formulations, because of its high gel content. This is therefore also the case for a product obtained according to Example 1 in Youker. Given such similarities between the comparison example and Example 1 of Youker, one would not be motivated to modify the teachings of Youker in order to achieve the presently claimed invention. As the Examiner states, there is no mention of the gel content prior to creaming in Youker, and certainly no suggestion that starting with a lower gel content could lead to a preparation suitable for adhesive formulations.

However, it is an object of the present application to provide aqueous polymer dispersions useful for the preparation of adhesive formulations (see for example page 4, line 1, 2). The good physical properties of the aqueous polychloroprene dispersions of the present invention (improved storage stability, glueing of high initial strength) which are specific for the polychloroprene dispersions of the present invention because of the preparation process and the gel content of the polychloroprene dispersions are not suggested in Youker. According to Youker, an improved polychloroprene latex useful for making polyisocyanide-modified foams is disclosed (column 1, line 16, 17). There is no indication in Youker concerning the use of specific aqueous polychloroprene dispersion formulations having a specific gel content which are obtainable by a specific process comprising step a) and b) according to Claim 1 of the present invention are very useful components for adhesive formulations.

As Youker does not disclose, teach or suggest all of the elements of the present claims, and there is no motivation to modify the teachings of Youker to arrive at the presently claimed invention, the claims are not obvious in light of Youker under 35 U.S.C. § 103(a). Therefore, the current claims are deemed to be patentable over Youker and the rejection of Claims 1-7 under 35 U.S.C. § 103(a) should also be withdrawn.

Claims 1-25 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Re: 36,618 to Christell et al. ("Christell"). Christell relates to specific polychloroprene latex adhesive compositions (column 1, line 9, 10). The compositions comprise a particular chloroprene homopolymer as a first component, which is prepared by a free radical-initiated emulsion polymerization process (column 2, lines 26 to 28). However, the preparation of the polychloroprene latex according to Christell does not comprise a specific aging step as claimed in Claim 1 of the present invention. Element b) of Claim 1 of the present application is therefore not disclosed in Christell.

In the aging step b) according to Claim 1 of the present application, a controlled hydrolysis of the polychloroprene is carried out, wherein a part of the chloride groups of the polychloroprene is replaced by hydroxide groups. In this reaction, Cl is formed, as can be seen by the lowering of the pH-value by aging. Because of this controlled hydrolysis, the polychloroprene dispersion according to the invention is storage-stable and no lowering of the pH-value occurs during storage.

However, the polychloroprene dispersions according to Christell have not been conditioned by aging. In these polychloroprene dispersions, no controlled exchange of Cl by OH has been taken place. Therefore, the pH-value of the dispersions is clearly lowered by storing the dispersions, as can be seen in Table 2a on page 16 of the present application, Examples A and B. The formulations according to the present invention, which have been conditioned by aging do not show a lowering of the pH-value when they are stored, because a controlled hydrolysis of Cl has been carried out with the aging process.

The polychloroprene dispersions according to the present invention therefore differ from the polychloroprene dispersions according to Christell in the amount of Cl, which has been exchanged by OH. Whereas the amount of Cl which is hydrolysable in the polychloroprene dispersions according to Christell is high, it is low in the polychloroprene dispersions according to the present invention as a result of the claimed process steps.

As Christell does not disclose, teach or suggest a dispersion produced by a process comprising all of the elements of the present claims, the claims cannot be anticipated by Christell under 35 U.S.C. § 102(b). Therefore, the current claims are deemed to be patentable over Christell and the rejection of Claims 1-25 under 35 U.S.C. § 102(b) should be withdrawn.

Claims 1-25 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,767,947 to Musch et al. ("Musch"). Musch relates to adhesive compositions based on polychloroprene dispersions having improved adhesive properties and a process for the preparation thereof (column 1, line 8 to 10). The polychloroprene dispersion contained in said adhesive compositions is obtained by emulsion polymerization of chloroprene and an ethylenically unsaturated monomer that is co-polymerizable with chloroprene in an alkaline medium in the presence of a specific tricyclic diterpen carboxylic acid (column 2, line 42 to 51). Musch is silent as to the gel content of the polychloroprene dispersions obtained. An aging step of the polychloroprene dispersion obtained is also not mentioned in Musch.

Applicants' arguments with respect to Christell apply with equal force to Musch. The polychloroprene dispersions according to Musch have likewise not been conditioned by aging. In these polychloroprene dispersions, no controlled exchange of Cl by OH has been taken place. Therefore, the pH-value of the dispersions is clearly lowered by storing the dispersions. The formulations according to the present invention, which have been conditioned by aging, do not show a lowering of the pH-value when they are stored, because a controlled hydrolysis of Cl has been carried out with the aging process.

The polychloroprene dispersions according to the present invention therefore differ from the polychloroprene dispersions according to Musch in the amount of Cl, which has been exchanged by OH. Whereas the amount of Cl which is hydrolysable in the polychloroprene dispersions according to Musch is high, it is low in the polychloroprene dispersions according to the present invention as a result of the claimed process steps.

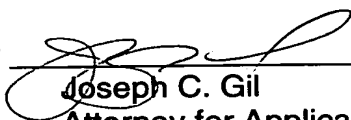
As Musch does not disclose, teach or suggest a dispersion produced by a process comprising all of the elements of the present claims, the claims cannot be anticipated by Musch under 35 U.S.C. § 102(b). Therefore, the current claims are

deemed to be patentable over Musch and the rejection of Claims 1-25 under 35 U.S.C. § 102(e) should be withdrawn.

In view of the above remarks, reconsideration and allowance of all pending claims is respectfully requested.

Respectfully submitted,

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